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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,287	01/14/2002	Masakazu Ogasawara	041514-5212	5436

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EXAMINER	
AGUSTIN, PETER VINCENT	

ART UNIT	PAPER NUMBER
2652	6

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,287	OGASAWARA ET AL.	
	Examiner	Art Unit	
	Peter Vincent Agustin	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,9-14 and 18-20* is/are rejected.

7)☒ Claim(s) *4-8 and 15-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 January 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 2 & 3 are objected to because the parts "GROOVE" and "LAND" have been labeled interchangeably. The exposed part is normally known in the art as the "LAND" and the recessed part is normally known as the "GROOVE". The drawings need to be corrected accordingly without departing from what has been described in the specification.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 12 & 13 rejected under 35 U.S.C. 102(b) as being anticipated by Noda et al. (hereafter Noda) (US 5,123,003).

In regard to claim 1, Noda discloses an optical pickup device (figure 2) driven by an error signal comprising: a grating element (8) for receiving a light beam to create zero order diffracted light, ± first order diffracted light and ± second order diffracted light when the light beam passes through the grating element; an optical system (9 & 10) for focusing the zero order, ± first order and ± second order diffracted light on a recording surface of an optical recording medium (1) so as to form a spot of the zero order diffracted light (figure 6, element 4) on a first track (2b) extending on the recording surface, spots of the ± second order diffracted light (5m & 5n) on tracks (2a & 2c) adjacent to the first track, and spots of the ± first order diffracted light (5a & 5b) between the spot of the zero order diffracted light and the spots of the ± second order diffracted light; and an optical detector (13) having first to fifth independent light-receiving elements (figure 7), the first light-receiving element (13A-13D) being adapted to receive returning light from the spot of the zero order diffracted light, the second (13E) and third (13F) light-receiving elements being adapted to receive returning light from the spots of the ± first order diffracted light, and the fourth (13G) and fifth (13H) light-receiving elements being adapted to receive returning light from the spots of the ± second order diffracted light, to produce output signals used to create an error signal.

In regard to claim 2, Noda discloses that the first light-receiving element (figure 7, elements 13A-13D) includes four independent light-receiving portions adjacent to each other and partitioned by two division lines intersecting each other perpendicularly, one of the division lines being parallel to a track extending direction.

In regard to claim 12, Noda discloses an apparatus (figure 2) comprising: means for receiving (8) a light beam from a light source (6) to create zero order diffracted light, ± first

order diffracted light and ± second order diffracted light; means (9 & 10) for focusing the zero order, ± first order and ± second order diffracted light on a recording surface of an optical recording medium (10) so as to form a spot of the zero order diffracted light (figure 6, element 4) on a first track (2b) extending on the recording surface, spots of the ± second order diffracted light (5m & 5n) on tracks (2a & 2c) adjacent to the first track, and spots of the ± first order diffracted light (5a & 5b) between the spot of the zero order diffracted light and the spots of the ± second order diffracted light; and means (13) having first to fifth light-receiving means (figure 7), the first light-receiving means (13A-13D) being adapted to receive returning light from the spot of the zero order diffracted light, the second (13E) and third (13F) light-receiving means being adapted to receive returning light from the spots of the ± first order diffracted light, and the fourth (13G) and fifth (13H) light-receiving means being adapted to receive returning light from the spots of the ± second order diffracted light, to create output signals used to prepare an error signal to drive the apparatus.

In regard to claim 13, Noda discloses that the first light-receiving means (figure 7, elements 13A-13D) includes four independent light-receiving portions adjacent to each other and partitioned by two division lines intersecting each other perpendicularly, one of the division lines being parallel to a track extending direction.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 3 & 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Noda as applied to claims 1 & 12 above, and further in view of Iida (US 6,545,959).

For a description of Noda, see the rejection above. However, Noda does not disclose that each of the second to fifth light-receiving elements/means includes at least two independent light-receiving portions adjacent to each other and partitioned by a division line extending substantially parallel to a track extending direction.

Iida discloses in figure 10 second (PD5 & PD8), third (PD6 & PD7), fourth (PD9 & PD10) and fifth (PD11 & PD12) light-receiving elements/means, each one including two independent light-receiving portions adjacent to each other and partitioned by a division line extending substantially parallel to a track extending direction. It would have been obvious to one of ordinary skill in the art at the time of invention by the applicant to have used the partitioned second to fifth light-receiving elements of Iida with the optical detector of Noda, the motivation being to provide a more accurate detection of the tracking error signal.

9. Claims 9 & 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Noda as applied to claims 1 & 12 above, and further in view of Alon (US 5,959,953).

For a description of Noda, see the rejection above. However, Noda does not disclose a crosstalk cancellation circuit/means connected with the first, fourth and fifth light-receiving elements for reducing an amount of crosstalk in the output signal from the first light-receiving element and originating from signals from adjacent tracks, based on the output signals from the fourth and fifth light-receiving elements.

Alon discloses a crosstalk cancellation circuit (figure 7) for reducing an amount of crosstalk in an output signal from a first light-receiving element (figure 3A, element 50) and

originating from signals from adjacent tracks, based on the output signals from fourth (53 or 55) and fifth (54 or 56) light-receiving elements (see also column 10, line 58 thru column 11, line 17). It would have been obvious to one of ordinary skill in the art at the time of invention by the applicant to have added the crosstalk cancellation circuit of Alon to the device of Noda, the motivation being to compensate for crosstalks resulting from magnification errors caused by track pitch variations.

10. Claims 10, 11, 19 & 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Noda as applied to claims 1 & 12 above, and further in view of Imada et al. (hereafter Imada) (US 5,404,344).

For a description of Noda, see the rejection above. However, Noda does not disclose an optical element/astigmatic means for astigmatizing at least the returning light from the spot of the zero order diffracted light.

Imada discloses an optical element (figure 2, element 7) for astigmatizing a returning light from the spot of a zero order diffracted light (see elements 8 & 9). Furthermore, Imada discloses that the optical element/astigmatic means is a cylindrical lens positioned in an optical path of the returning light of the zero order diffracted light such that a center axis of the cylindrical lens extends at an angle of 45° to a track extending direction on the optical recordation medium (column 4, lines 10-30). It would have been obvious to one of ordinary skill in the art at the time of invention by the applicant to have added the astigmatic element of Imada to the device of Noda, the motivation being to provide astigmatism necessary to detect an error signal.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kadowaki et al. (US 5,892,741) discloses on figure 13 five light beam spots which are zero, ± first and ± second order diffracted lights, and a detector (figure 14, element 52) having five light-receiving elements for detecting the five light beam spots. Likewise, Ohba (US 5,892,744) discloses five light beam spots on figure 7 and a five-element detector on figure 6.

Buchler (US 2004/0066715) discloses a method for generating a lens position signal and corresponding apparatus for reading from and/or writing to an optical recording medium. Figure 6 shows five light beam spots and figure 7 shows a five-element detector, the middle element divided into four areas, and the remaining four divided into two areas.

Ando et al. (US 5,479,387) discloses an optical head including multiple photodetectors for reading signals and error signals for servoing from both a read-only recording medium and a magneto-optical recording medium.

Allowable Subject Matter

12. Claims 4-8 & 15-17 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

In regard to claims 4 & 15, no prior art of record alone or in combination discloses or suggests an optical pickup device/apparatus comprising: a grating element for creating zero order diffracted light, ± first order diffracted light and ± second order diffracted light; an optical

system for focusing the zero order, ± first order and ± second order diffracted light on an optical recording medium; an optical detector having first to fifth independent light-receiving elements, further including: a first tracking error signal calculation circuit/means connected with the first light-receiving element/means for creating **a first tracking error signal based on the output signal from the first light-receiving element**; a second tracking error signal calculation circuit connected with the first to third light-receiving elements for creating **a second tracking error signal based on the output signals from the first to third light-receiving elements**; and a third tracking error signal calculation circuit connected with the first, fourth and fifth light-receiving elements for creating **a third tracking error signal based on the output signals from the first, fourth and fifth light-receiving elements**.

Claims 5-8, 16 & 17 are allowable because these claims are dependent upon allowable base claims.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Vincent Agustin whose telephone number is (703) 305-8980. The examiner can normally be reached on Monday thru Friday 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PVA
04/16/2004

W. R. YOUNG
PRIMARY EXAMINER